

A critical appraisal of “Effectiveness of dry needling versus a classical physiotherapy program in patients with chronic low-back pain: a single-blind, randomized, controlled trial”.

By

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Abstract: This critical appraisal looks into an article that studied the effect of dry needling on trigger point pain in the low back. This study is of interest to the physical therapy world due to the prevalence of low back pain in today's society. The study was critiqued based on criteria provided in the Evidenced Based Physical Therapy class at Angelo State University. Over all, the study is considered to be done very well and could be very valuable to Physical Therapists who are willing to take continuing education classes about the dry needling technique. The major drawback to this study would be the number of cited sources that were not in English and so cannot be utilized by further researchers. The article does contain a very thorough discussion section that addresses the limitations, further study ideas, and clinical significance. Finally this appraisal looks at the results and how the statistical significance of some of them can be related to clinical practice. The last section of the appraisal discusses views on the article, why I as a student agree with the article and how I can see it being utilized in the future.

Key words: Dry needling, physiotherapy, low-back pain

Introduction

In the world of physical therapy, there is a constant search for new ways to help alleviate pain. Recently, the practice of dry needling has become of interest to many PTs; studies on the technique and how it relates to trigger points continue to be published. The clinical importance of this study could be great as it gives physical therapists another tool to assist their patients in living their desired lifestyles. This article was found while researching the question “Is trigger point dry needling as effective in alleviating neck, back, and shoulder pain in adults as manual therapy is?”. Although this article only looks at low-back pain, due to the prevalence of this type of pain in society today, it was an appropriate way to narrow the search.

Methods

The database Pub Med, was utilized for the literature search using the keywords “trigger point dry needling” and eventually furthering the search by adding “neck and back”. The search was limited to full text and peer reviewed articles that had been published within the last five years. With the way research continues to come out, investing too much into an article that is older than five years or had not been peer reviewed would not be as valuable. The search excluded any articles that looked at more than just neck and back pain because without this exclusion, there were 900 search results but with it the number of hits was narrowed down to only 13.

This article was published in the Journal of Physical Therapy Science in 2017. It was written by Emine Handan Tuzun, PhD, PT as well as five other qualified authors who had either, a PT degree or both a PT degree and a PhD. The authors were from both the Physiotherapy and Rehabilitation Department at the Eastern Mediterranean University and the Physiotherapy and Rehabilitation Department in the Famagusta State Hospital both in Famagusta, Northern Cyprus.

This article was selected based on how well it addressed the question stated above. It has the benefit of being a single blind study with minimal variables that was done by qualified researchers. The study utilized good exclusion criteria so the results would not be influenced by differences in the patients prior to, or during the study. It also included an in-depth discussion section that proved beneficial when looking into the clinical applications and possible further studies. From a general perspective, the study was thoroughly thought out with good attention to detail and has the potential to be extremely beneficial to the physical therapy world, so it was considered beneficial to look further into.

Results

Summary of the study

This article compared a typical physical therapy program to a program based around dry needling in patients with low-back pain. They chose low-back pain caused by disc herniations because of to the prevalence (60-80% of adults) in the general population. Along with the effect of dry needling and physical therapy on pain, the researchers assessed depression, trigger point number and sensitivity, and kinesiophobia. The subjects were between 35 and 70 years old and were required to have had low-back pain that exceeded three months, so as to be classified as “chronic”. There were many exclusions to ensure the safety of the patients as well as to narrow the test down to only one variable. The study was as single blind test, and the same physical therapist provided all treatments for each group. The randomized grouping was completed by an individual that was not involved in the study to avoid bias. At the end the study, each group had 18 individuals but two were then excluded from the control group due to their back pain not fully fitting the criteria. The researchers then addressed any faults of the study as well as follow up studies that would be beneficial.

Appraisal of the study introduction

The introduction to this article was very thorough when considering the background and other sources that were utilized during it. The literature review was well done and discusses how dry needling may be an effective treatment for reducing trigger point pain and sensitivity, but there is a need for more evidence to fully support this claim. They use the cited sources well to back up their objective of comparing dry needling and a typical physical therapy program in patients with low back pain, while looking at their effect on pain and trigger point number and sensitivity; as well as psychological factors such as depression and kinesiophobia.

The area in the discussion that could be improved on is the section on depression and how it relates to trigger point therapy. The article addresses the connection between pain and depression but leaves it to be inferred how the therapy would affect that depression. Another drawback to this study is that the literature cited in the introduction is commonly over ten years old. This area could be much stronger if the studies used were more recent. This may become easier for further studies, as this area of study is still growing so there are not many available articles to site. There were also a few articles cited that were not written in English which is a drawback for anyone who might want to look further into them.

Appraisal of the study methods

This study was a single-blind, randomized controlled trial with an experimental, prospective design. This study is strengthened by the fact they used a person who was not invested in the study to randomly assign the subjects into two groups. These groups had similar demographic, clinical, and prognostic characteristics. Each participant was required to be classified as chronic with pain that lasted at least three months, they had to be diagnosed with

lumbar disc hernias (LNHP), and have at least one active trigger point. Two participants were excluded due to the lack of trigger points. The researchers did do a statistical analysis prior to the test to determine the number of participants they needed and accounted for possible drop out so the loss of two participants should not have had a significant effect. Unfortunately there was not a way to blind the subjects or the clinicians who performed the therapy. They did use the same clinician to perform the assessments prior to and after the treatment, and this person was blinded to the treatment groups.

Fore the outcome measures that were used it was cited that “the validity and reliability have been reported”. The study could have been stronger if they had stated how the outcome measures were considered valid and reliable. The data collection was clear and had detail enough to replicate though some of the tests were in articles that were written in Turkish. The statistical analysis that was performed was not justified in the article but it was explained what each was being used for. Based on the charts provided it appears as though the tests were appropriately chosen, though some justification could make the article stronger.

Appraisal of the study results

The results section of this article was very well written. They addressed each part of the hypothesis with designated paragraphs. The authors did not report on all the outcome measures that were presented in the methods, but they did report the SF-MPQ for the sensory, affective, and total pain points. They did not address the BDI used to look at depression levels but this could be due to the lack of significant results. The tables have titles that help the reader understand them and though the first table goes through more information than might be necessary, over all the tables are useful.

The results were considered statistically significant if they were <0.05 , some of the results were even listed as under 0.001 and the confidence intervals were 95%. The authors also acknowledged the data that was not significant. With this knowledge the results can be considered in clinical work considering the study group improved significantly as far as pain and number of trigger points was concerned.

Appraisal of the study discussion

The discussion section of this article was very well thought out as it did a good job further considering the results. The authors did well tying the findings in to other articles that helped it to be better understood. In comparison to the articles used in the introduction, these articles were more recent and for the most part published within 10 years. They recognize the limitations to the study in this section and mention that due to some of these, people should cautiously interpret the results. The authors also mentioned that the study would benefit from a follow up study that looked at the long-term results.

This section is lacking in the area addressing the clinical significance. The authors address some of the common clinical treatments but did not spend adequate time considering the results in a clinical situation.

Discussion

This article is extremely clinically significant due to the ability of this treatment to significantly reduce low-back pain, which is a common problem that PTs are faced with. This study addresses the clinical question posed above fairly well. It compares the two treatments of interest, but only in one area of the body. It would be interesting to look at other studies that looked at other places in the body to see if they produce similar results.

This type of treatment takes time to learn and if done improperly could cause the patient more pain and discomfort, so it should be understood to the practitioner's full ability before being used. After the proper training, dry needling could be extremely beneficial to therapists in the clinic and should be looked into further and utilized appropriately.

The results of this article should give the physical therapist enough confidence and evidence to discuss the option of trigger point therapy with their clients. In the future, if a new physical therapist wanted to implement this intervention they should go through the proper training courses, just as with every other type of therapy, in order to have the appropriate skill level to use this on patients.

Overall, this article was beneficial and gives PTs sufficient information to move forward with. It was very well organized and addressed most all of the questions that came up while reading it. The article set a very good foundation for more research and showed that it is an area worth researching further because it could have a large benefit to the physical therapy community as a whole.